

Appendix F – Design Features for Particular Implementation Projects Spruce Beetle Epidemic and Aspen Decline Management Response 6/4/14 DRAFT

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Introduction

The following design elements include guidelines that come from laws, regulations, Forest Service Manual or Handbook policy, standard contract language, Forest Service-approved best management practices, or Forest Plan guidelines. These items are considered to be standard management practice as provided by the aforementioned sources and will be applied to all action alternatives. They are listed by the functional area from which they arise.

During planning of a particular treatment project authorized under the EIS, an interdisciplinary team will be used to complete required surveys in accordance with Forest Plan and Region 2 policy requirements, and project layout, including treatment units, location of roads, skid trails and landings, and water influence zones. The team will also identify applicable project design features that will be applied to the treatment area. The Project Implementation Checklist, Appendix H, will be used to document completed work. Forest Service staff specialists will sign off on completed work before it is approved by the District Ranger.

Design features are subject to change resulting from 1) change in policy or management direction (e.g. amendments or revision of the Forest Plan, federally listing of a species, etc.) and 2) when new science indicates design feature should be modified or replaced to improve effectiveness. Potential changes will be evaluated during Forest Leadership Team Management Reviews held annually.

Identifier	Design Feature	Source / Citation
Air Quality Objectives: Comply with Clean Air Act requirements.		
AQ-1	Prescribed burning operations will comply with the State of Colorado air quality regulations.	Clean Air Act
Cadastral Survey Monuments Objectives: xxx		
CSM-1	<p>All Cadastral Survey Monument and evidence of Public Lands Survey System (PLSS) boundaries will be protected to the extent possible. Based on the risk rating document and map provided by agency land surveying personnel (on file at the U.S. Forest Service Gunnison District office and the BLM Gunnison Field Office), the following procedures will be implemented to protect PLSS monuments.</p> <p>A. High Risk to original survey monuments and land boundaries: Either a USFS surveyor or BLM Cadastral surveyor should be engaged to conduct reconnaissance of the area, flagging and posting signs at the monument locations that can be readily identified by project leaders. At minimum a corner recovery record created and at the minimum resource grade GPS coordinate collected.</p> <p>B. Moderate Risk to survey monuments and land boundaries: Field notes, plats and coordinate locations will be provided for monuments recovered or established during more recent surveys to project leaders who will flag monument locations to be readily identified and protected.</p> <p>C. Minimal Risk to survey monuments and land boundaries: Needed protection measures will be determined on a case-by-case discussion with USFS Surveyor or BLM Cadastral Surveyor on necessary course of action.</p>	
Cultural Resources Objectives: The following Cultural Resources Design Features derived from the PA will be implemented for Alternatives 2, 3 and 4. If these standard treatments are followed as described above, the proposed project will have no direct or indirect effects on cultural resources. Furthermore, under the SBEADMR S.106 Notification consultation with the Colorado State Historic Preservation Officer will have no adverse effect on historic properties (Claeyssens 2014).		

CR-1	Cultural resource surveys will occur prior to project implementation. All sites within a treatment area will be avoided until State Historic Preservation Office consultation may be completed.	2010 Programmatic Agreement for Bark Beetle, Hazardous Fuel and Tree Reduction Programs
CR-2	Discoveries: If any new cultural resource sites are discovered during implementation, project activities would stop and the Forest Service archeologist would be contacted immediately. The archaeologist will evaluate the significance of the cultural resource. If potentially significant, within 48 hours of the discovery, the SHPO will be notified of the discovery and consultation will begin to determine an appropriate mitigation measure. The discovery will be protected from further disturbance until any required mitigation is completed. Operations may resume at the discovery site upon receipt of written instructions and authorization by agency officials.	2010 Programmatic Agreement for Bark Beetle, Hazardous Fuel and Tree Reduction Programs
CR-3	For all cultural resource sites located during the field inventory or previously known, no mechanical treatment or ground disturbing activities will occur within the site boundary, including an additional 50 foot buffer around the site. If mechanical treatments are necessary, the site and the 50 foot buffer around the site will be treated by hand to remove hazard trees and accumulated fuel build up.	Stipulation 5.B.b. ii and Stipulation 6.a and 6.b, Standard Treatments for Historic Properties, in the 2010 Programmatic Agreement for Bark Beetle, Hazardous Fuel and Tree Reduction Programs
CR-4	If road construction cannot physically be relocated to avoid a site, and there is the potential for unidentified buried cultural remains, then SHPO consultation will take place and construction activities in the site boundaries would be monitored by an archaeologist.	GMUG's 2013 Prescribed Fire Programmatic Agreement
CR-5	Culturally Scarred Trees (CSTs) will be protected during mechanical treatments and to the extent possible, during underburns. Hand removal of fuels under CSTs will be conducted to the extent possible to reduce the risk of killing them during prescribed burning. However, no measures will be taken to create firelines or physically prevent burning around the CSTs.	GMUG's 2013 Prescribed Fire Programmatic Agreement
CR-6	Monitoring: For projects where field inventories are not feasible due to visibility concerns prior to project implementation, monitoring in the form of a sample inventory for cultural resources will be required post implementation. This monitoring will take place within one year of project implementation, with results provided to SHPO.	GMUG's 2013 Prescribed Fire Programmatic Agreement
CR-7	Cultural resource sites that were required to be avoided during project implementation will be monitored for effectiveness of the protection measures following project completion.	GMUG's 2013 Prescribed Fire Programmatic Agreement
CR-8	Native American human remains: Any operator carrying out projects must notify the Forest Service, by telephone, with written confirmation, immediately upon the discovery of human remains or funerary items, discovered on federal land. The Forest Service must then immediately notify appropriate tribes of the find. All project activities must stop in the vicinity of the discovery that could adversely affect it, until tribal consultation can be completed and a Plan of Action can be approved and implemented	NAGRPA regulation 43 CFR 10.4(g)

Forest Service Sensitive Plants Objectives: 1. For Upland (non-wetland) Sensitive Species: Minimize impacts to individuals or populations that would lead to a loss in viability. 2. For all Sensitive Species: Minimize impacts to individuals or populations that would contribute to a loss in viability. 3. For Fen Sensitive Species*: a. Reduce potential for recreation-related resource damage to fens. b. Maintain fen hydrologic function (soil compaction, water diversion, dewatering) that would reduce suitability or sustainability of rare fen habitat. c. Prevent sedimentation events that would reduce or impair wetland functions. 4. For <i>Astragalus leptaleus</i> : Maintain functions of riparian wet or moist meadows. * <i>Carex diandra</i> , <i>Drosera rotundifolia</i> , <i>Eriophorum altaicum</i> var. <i>neogaeum</i> , <i>E. chamissonis</i> , <i>E. gracile</i> , <i>Kobresia simpliciuscula</i> , <i>Salix candida</i> , <i>Sphagnum angustifolium</i> , <i>Utricularia minor</i>		
FSSP-1	Upland (non-wetland) Sensitive Species A - Sensitive plant occurrences will be flagged and avoided for all ground disturbing activities with a buffer of 20 – 100 feet (as determined during project analysis). B - Disturbances including road construction, reconstruction, landings, skid trails, and staging areas in potential habitat for sensitive species will be surveyed by a qualified botanist in the proper season prior to implementation.	Elliott and others 2011, project specific design
FSSP-2	All Sensitive Species A - During prescribed fire operations (including aerial or ground broadcast burning), ignitions and other fuel treatment activities would be located away from sensitive plant species occurrences and wetlands. B - Dust abatement (use of MgCl ₂ or CaCl ₂) will avoid sensitive species occurrences and wetlands by 500 feet. C - Avoid sensitive species occurrences and wetlands with chemical weed treatments. D - Pre-project implementation assessment will be conducted by a qualified botanist. Notification will be given with sufficient time for field surveys during the proper season to be conducted for sensitive plant species expected to occur in the project area or affected by it. E - Any Region 2 sensitive plant species new to list or located after contract or permit issuance will be appropriately managed by active coordination between permittee, contractor or purchaser, Forest Service line officer, project administrator, and botanist.	Elliott and others 2011, project specific design
FSSP-3	<i>Machaeranthera coloradoensis</i> A - Minimize use of roads passing through known sensitive species sites.	Elliott and others 2011, project specific design
FSSP-4	<i>Botrychium lineare</i>, <i>B. paradoxum</i> A - Proposed road construction, reconstruction, landings and staging areas in potential habitat for sensitive species will be designed and marked on the ground only after the areas have been surveyed by a qualified botanist in the proper season. B - If there is tree canopy covering habitat, maintain pre-project tree canopy over habitat.	Elliott and others 2011, project specific design
FSSP-5	Fen sensitive species* A - During treatment, temporary roads will be signed and effectively closed to the public if near a wetland.	
FSSP-6	Fen sensitive species* A - Keep roads and trails out of wetlands and their water influence zones (WIZ). (1) B - Restore existing disturbed areas that are eroding and contributing sediment to the wetland. C - Delineate Water Influence Zone (WIZ) prior to project implementation according to Regional and National Standards. (2) D - No mechanized equipment operation will occur in the water influence zone (WIZ) of a wetland. (1)	(1) USDA Forest Service 2006. (2) USDA Forest Service 2006, 2012.

FSSP-7	Fen sensitive species* A – Treatment activities will avoid wetlands B – Mechanical treatment and vehicle use will occur outside of wetlands or their water influence zones. C- Prevent mineral sediment deposition from occurring in wetlands. (3)	(3) USDA Forest Service 2012, Austin 2008.
FSSP-8	Fen sensitive species* A - Develop an erosion and sediment control plan to avoid or minimize downstream impacts using measures appropriate to the site and the proposed activity. (3) B - Manage land treatments to limit the sum of severely burned soil and detrimentally compacted, eroded, and displaced soil to no more than 15% of any activity area. (1) Conduct prescribed fires to minimize the residence time on the soil while meeting the burn objectives. This is usually done when the soil and duff are moist. C - Limit roads and other disturbed sites to the minimum feasible number, width, and total length. Minimize sediment discharge into streams, lakes, & wetlands during construction and stabilize & maintain disturbed sites to control erosion. (1) D - Maintain sufficient upslope ground cover to prevent sediment movement downward into wetland. E - Reclaim roads, landings and other disturbed sites when use ends. (1)	1) USDA Forest Service 2006. (3) USDA Forest Service 2012, Austin 2008.
FSSP-9	<i>Astragalus leptaleus</i> A - Avoid treatment activities and equipment use in wet or moist meadows. B - Design stream crossings at armored points, or armor them to prevent loss of functions in wet or moist meadows.	Elliott and others 2011, project specific design
Invasive Weeds Objective: Prevent new introductions of weeds or spread of existing infestations.		
IW-1	Practices - Before ground-disturbing activities begin, inventory and prioritize weed infestations for treatment in project operating areas and along access routes. Control weeds as necessary. (3) A - Annually, vegetation management personnel should collaborate on project layout and design. During layout of commercial and non-commercial mechanical treatment or prescribed burn units, forest vegetation management personnel should evaluate invasive risks, analyze potential treatment areas for invasive weeds within high risk sites to identify prevention practices and minimize weed establishment and spread.	(3) USDA Forest Service 2001.
IW-2	Practices - Identify what weeds are on site, or within reasonably expected potential invasion vicinity, and do a risk assessment accordingly. (3) A - Inventory non-native invasive plant populations within and adjacent to treatment areas and access roads prior to vegetation treatment. (3) Inventories will occur during the proper time of year for detection, and will occur in sufficient timing to conduct necessary pre implementation treatments.	(3) USDA Forest Service 2001.
IW-3	Practices - Design projects to avoid new introductions or spread of existing infestations. A - Any infestations of weeds will be treated prior to implementation as part of the project. B - Consider excluding areas from prescribed burning where there are infestations of fire-proliferating species (example, cheatgrass).	

IW-4	<p>Practices - Prevent the accidental spread of invasive species carried by contaminated vehicles, equipment, personnel, or materials. (2)</p> <p>A - Establish and implement standards and requirements for vehicle and equipment cleaning to prevent the accidental spread of aquatic and terrestrial invasive species on the project area. (1) Use standard timber sale contract provision WO-CT 6.36 to ensure appropriate equipment cleaning. Equipment cleaning should be conducted after working in areas with known infestations, and prior to bringing equipment onto the National Forest.</p> <p>B - Locate and use weed- free project staging areas. Avoid or minimize all types of travel through weed- infested areas, or restrict to those periods when spread of seed or propagules are least likely. (3)</p> <p>C - Workers need to inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment. Proper disposal means bagging the seeds and plant parts and incinerating them. (3)</p> <p>D - All imported materials (erosion control materials, soil, gravel, etc.) should be from a “weed-free” source or area.(3)</p> <p>E - Monitoring will occur where imported materials have been placed to insure no new infestations have been established.</p>	<p>(1) Noxious weeds, that appear on the State of Colorado’s noxious weed list (Colorado 2013)</p> <p>(2) FSM 2900.</p> <p>(3) USDA Forest Service 2001.</p>
IW-5	<p>Practices - Retain native vegetation to the extent possible to prevent weed germination and establishment, in and around activity area and keep soil disturbance to a minimum. (3)</p> <p>A - Timber purchasers and contractors will re-seed disturbed areas (as designated by the Forest Service) with an appropriate certified weed-free native seed mix (USDA Forest Service 2008) to avoid introduction of nonnative invasive plants and promote re-vegetation of native species.</p> <p>B - Throughout the implementation period of the proposed action, the Forest Service should maintain flexibility to defer cut units or stands within priority areas from treatment due to the discovery of significant new invasive plant populations with potential to disrupt the functioning of native plant communities.</p> <p>C - Where fuel reduction, timber harvest and other resource objectives necessitate ground disturbance and soil exposure, or substantial ground cover and canopy removal, include appropriate re-vegetation or invasive plant management strategies in the fuel treatment plan. (4) Where necessary, rehabilitate/restore or treat disturbed areas after management activities and conduct follow up monitoring on these areas susceptible to invasive plant spread. (4)</p> <p>D - Rehabilitate/restore or treat disturbed areas after fuel management activities and conduct follow up monitoring on these areas susceptible to invasive plant spread. (4)</p> <p>E - Cover and reduce exposure of bare ground. Use on-site chipping or treated fuels from mastication to cover bare soil to prevent seed establishment where appropriate. (4) See SV-4 concerning areas where mineral soil exposure would be needed to assist with natural regeneration.</p> <p>F- Slash and burn piles will be located away from known invasive plant populations and will be assessed for restoration and revegetation needs.</p>	<p>(3) USDA Forest Service 2001.</p> <p>(4) From Cal-IPC Land Management BMPs</p>

IW-6	Practices - Control and treat existing infestations to prevent project-associated spread and proliferation. A - Coordinate project activities with any nearby herbicide application to maximize cost effectiveness of nonnative invasive plant treatments. (3) B - Treatment of noxious weeds will follow Forest Service policy regarding certification of applicators and reporting of data to Forest Service data bases. C - Treatments of noxious weeds will follow the District Noxious Weed Treatment Decision Notice. D - Populations of noxious weeds should be aggressively treated with the appropriate management tools. This may include treatment with herbicides, grazing, cultural, and biological methods, consistent with the GMUG district decision notices.	(3) USDA Forest Service 2001.
IW-7	Practices - Monitor project area for new infestations and to assess efficacy of treatments. A - Inspect and document all limited term ground-disturbing operations in infested areas for at least three (5) growing seasons following completion of the project. For on- going projects, continue to monitor until reasonable certainty is obtained that no new infestations have occurred. Provide for follow-up treatments based on inspection results. (3) B - Consider modifying design feature implementation for future project implementation based on considerations such as efficacy, cost, and other unforeseen impacts. C - Consider including other design criteria for site specific considerations.	(3) USDA Forest Service 2001.

Range Objectives: Maintain or Improve grazing conditions while protecting existing range improvements. 1. Protect range improvements. 2. Eliminate conflicts between implementation activities and range activities, or mitigate for them. 3. Revegetate sites disturbed during implementation.		
RG-1	All range improvements including: fences, cattle guards, corrals, water developments, pipelines, troughs, stock trails and stock driveways will be identified in the timber sale or service contract as protected improvements.	GMUG LMRP
RG-2	Range transects and witness trees/posts will be identified in the timber sale or service contract as protected features.	GMUG LMRP
RG-3	Coordinate with District Rangeland Management Specialists prior to developing sale and/or service contracts to identify and mitigate any potential conflicts during implementation. Range personnel will be responsible for incorporating mitigation measures into grazing permittees' Annual Operating Instructions (for example, a pasture needs to be grazed earlier/later to avoid timber sale activities, should a sale or burning avoid a stock driveway at a particular time of year, etc.).	GMUG LMRP
RG-4	Re-seeding: See IW-5.	
Recreation Objectives: xxx		
REC-1	Application of timber marking paint along roads designated as "scenic or historic" designation. In critical view shed areas, all leave tree breast marks will be placed on opposite side of the highway to minimize negative visual impact for trees that are visible within 150 feet of the road. Additionally, specific slash treatment and "clean up" activities will be included in silvicultural prescriptions to address the visual objects of the Corridor Master Plan for the particular highway.	

REC-2?	Treatments in the wildland-user interface (WUI) in or near campgrounds and other developed sites will ... [be coordinated with recreation management how?]	
REC-3?	Treatments in the WUI on or near roads will ... [be coordinated with recreation management how?]	
REC-4?	Treatments on or near trails will ... [be coordinated with recreation management how?]	
Silviculture Objectives: <ol style="list-style-type: none"> For spruce beetle-affected stands: <ol style="list-style-type: none"> Provide for salvage of dead or dying stands Maintenance of green stands where they exist Regenerate stands where needed. For stands to be treated for aspen decline: <ol style="list-style-type: none"> Regeneration of aspen before advanced decline, by either fire or mechanical removal Increase landscape resilience of aspen by ensuring that there are significant patches of young aspen Provide for aspen establishment 		
SV-1	All regeneration cutting will meet stocking standards as defined in the Forest Plan.	1991 Forest Plan
SV-2	All vegetation treatments, including prescribed fire, will be prescribed by a U.S. Forest Service, Region 2, Certified Silviculturist in accordance with applicable guidance from other resource specialists.	FSH 2409.17 Silvicultural Practices handbook
SV-3	To the greatest degree practicable given site fuels conditions, jackpot and pile burning would be used as acceptable methods to assist with natural regeneration strategies. Burning could be prescribed to create mineral soil seedbeds for natural regeneration. Harvested areas would be evaluated for stocking	R-2 FSH 2409.17 Silvicultural Practices Handbook
SV-4	<p>During site preparation or piling activities, mineral soil exposure will be less than 40% of the treated area. Soil cover should be retained when practicable.</p> <p>To assist natural regeneration, conduct vegetation and fuels management activities to average 20 - 40% mineral soil exposure in post-harvest, as prescribed in the stand management prescription. On south slopes, mineral soil exposure would be less so that site moisture can better be retained.</p> <p>If the area has been identified as being high risk for invasive plants, or is known to have existing infestations, reduce soil exposure and consider artificial regeneration practices (planting).</p>	Alexander 1987
SV-5	In order to reduce the risk of spruce beetles being drawn to uninfected trees, in stands with a component of live spruce which are not beetle-infected, felled spruce shall be removed from the sale area by no later than October 31 of the year felling occurs and unutilized spruce material (in excess of the 10-20 tons/acre required by the Forest Plan) that is cut during operations and greater than 6" diameter at the small end, but is not merchantable and left on site could be removed from the stand and taken to the landing. This will be considered yarding of un-merchantable material (YUM). When removal of non-merchantable material (YUM) is operationally infeasible, material would be debarked in stands, chipped or otherwise treated within the stand to reduce the likelihood of the material being utilized as brood material. Treatment of non-merchantable material will be prescribed by a certified silviculturist based on site specific conditions, with the overall goal being to reduce brood material.	Professional judgment of GMUG silviculturists and Forest Health Protection Staff.
SV-6	During any types of harvest in spruce-fir, pockets or areas of advanced regeneration will avoided to the greatest degree practicable protect advanced regeneration.	Professional judgment and standard operating procedure used by GMUG silviculturists.

SV-7	Broadcast burning for regeneration of spruce-fir stands should be limited to salvage operations in stands with almost total spruce mortality where limited advanced regeneration is left, or anticipated to be left after harvest in order to avoid negative impacts of fire to live spruce. Targets for broadcast burning for regeneration in salvage harvested spruce-fir stands would be creating patches of exposed mineral soil in up to 40% of the area to allow for spruce seed establishment mixed with some large residual material to provide shade to seedlings and seed sources within 300 feet of a majority of the unit. If the area has been identified as being high risk for invasive plants, or is known to have existing infestations, reduce bare mineral soil exposure and consider artificial regeneration practices (planting).	Professional judgment of GMUG silviculturists, Fire Effects Information System, Kilgore and Curtis 1987.
SV-8	In stands managed for aspen regeneration: a. Treatment units > 20 acres are preferred, to lessen effects of big game and livestock browsing b. Minimize soil compaction by heavy equipment and haul trucks. c. Confine aspen treatments to suitable soils as much as possible. d. Give preference to sites in threatened and persistent aspen habitat zones (Worrall 2013). e. Use clear-felling (with fire as appropriate) to regenerate aspen stands for increased landscape resilience f. Choose timing of treatments, appropriate to recent extreme weather events.	Johnston 2001, Worrall 2013, Worrall et al. 2013
Slash Piles Objectives: <ol style="list-style-type: none"> 1. Use current science and silvicultural, fuels and fire management practices to achieve an optimum balance between positive and negative effects of slash treatment on soils, hydrology, wildlife and potential fire risk 2. Reduce negative impacts of fires. 		
SP-1	If the treatment unit is <100 acres and not near infrastructure or in management areas 1A, 1B or 1D, and aspen regeneration is the main goal, slash may be left on the ground to deter elk browse of aspen seedlings.	Professional judgment and standard operating procedure used by GMUG fuels managers.
SP-2	A minimum and maximum fuel loading will be specified in association with harvests and fuels treatments. This minimum and maximum will include any needs to reduce fuels near infrastructure and leave material onsite for seedling establishment, wildlife benefit and soils health.	Standard operating procedure used by GMUG silviculturists and fuel managers.
SP-3	In Management Areas 1A, 1B and 1D, (developed recreations sites, ski areas, utility corridors) enough harvest/activity-generated fuels will be removed so that residual fuel loading would not produce attempt to attain less than four foot flame lengths under 90% burning conditions . Slash piles will be burned by the Forest Service in accordance with agency protocols.	1991 Forest Plan Amendment, 8224GM, p III-91, III-95, III-99 and standard operating procedure used by GMUG silviculturists.
SP-4	When possible concentrate material in large piles. Piles should not exceed 1/8 of an acre in size. Fewer, larger piles rather than many smaller piles would facilitate completion of pile burning. Piles should be spaced adequately away from leave trees to reduce damage. When possible do not place green material exceeding 8" in burn piles. Design projects so activity fuels larger than 8" are piled separately. Larger fuels (greater than 8") should be removed from site when practicable. Large burn piles (greater than approximately 400 sq. feet) will be preferentially located on landings. After piles are burned, efforts will be made to rehabilitate and revegetate burn pile scar. If piles are created by a bulldozer, use a brush rake to avoid collecting soil and duff in the burn pile	Professional judgment and standard operating procedure used by GMUG silviculturists and fuels managers.

SP-5	In areas treated for recovery where beetle kill is prominent, piles will be burned as soon as burn conditions for pile burning occur (usually first adequate snowfall event). Piles will need to be located in proximity to roads that prescribed burn personnel can reach the site either by motorized vehicle (truck, UTV, ATV, or snowmobile) or by foot without having to hike or ski more than ¼ to ½ mile to reach the piles.	Professional judgment and standard operating procedure used by GMUG silviculturists and fuels managers.
SP-6	Activity generated fuels would be reduced in compliance with the project Brush and Disposal (BD) plan. Fuels, silviculture and timber resources management personnel would develop prescriptions considering economical harvest methods, activity fuels and residual site conditions.	FSH 2409.19
Transportation System and Haul Routes Objectives: Manage travel management effectively to provide resource protection and a safe, environmentally sound, and efficient transportation system.		
TSHR-1	Existing roads will be used for equipment access to the extent road location and condition permit reasonable access. Implementation of mechanical treatments and harvests will attempt to minimize road construction whenever possible.	2006 Watershed Conservation Practices Handbook and project specific design
TSHR-2	<p>New Access Roads: Where terrain, road length, and other resource risks exist, a “Designed Road” shall be utilized for Project access. Designed Roads would be surveyed, designed, and administered by the Forest Service engineering department. Designed Roads may become National Forest System roads if needed for long-term access and utilization, or may be subsequently decommissioned if only needed for temporary project access. The District Ranger shall be responsible for determining whether a designed road is to be added to the Forest transportation system.</p> <p>Temporary roads may be used where a designed road is not needed, as determined by the Forest Service. The location and clearing widths of all Temporary Roads or facilities shall be agreed to in writing (between the Forest Service and the contractor) before construction is started. Following use for harvest and project implementation, temporary roads will be decommissioned, which involves recontouring where significant sideslope exists, elimination of ditches and other structures, outslowing the roadbed, removal of ruts and berms, effectively blocking the road to normal vehicular traffic where feasible, and construction of drainage features such as cross ditches and water bars. Invasive species monitoring will occur after road decommissioning and will be followed by weed treatments where needed.</p>	<p>Project specific design</p> <p>Timber Sale Contract Standard Provisions (Contract FS-2400-6, USDA Forest Service 2006)</p>
TSHR-3	Require commercial haulers to perform maintenance commensurate with their use; depositing sufficient funds with the Forest Service may be used in lieu of performance. Surface rock replacement deposits will be collected to maintain currently surfaced roads that are used for timber hauling. Deposits will be collected commensurate with the use. Quarry materials will be collected from a site that has been found to be free of invasive plants.	FSM 7732.03
TSHR-4	Timber hauling operations will be restricted during wet or thawed conditions, when needed to protect the road surface.	FS National BMPs; Project specific design
TSHR-5	Safety signing will be used to alert the public that logging operations are in progress and would meet the requirements of the Manual of Uniform Traffic Control Devices (MUTCD).	Timber Sale Contract Standard Provisions (Contract FS-2400-6, USDA Forest Service 2006); FSM 7160
TSHR-6	Use of private roads, encroachment of public roads and rights-of-way, and other access needs outside Forest Service jurisdiction shall have the proper approval or authorization in place prior to use.	16 U.S.C. 572; project specific design

<p>Water Quality and Soil Productivity Objectives:</p> <ol style="list-style-type: none"> 1. Manage treatments to maintain ground cover to prevent harmful increases in runoff. 2. In the Water Influence Zone (WIZ) next to perennial & intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition 3. Design and construct all stream crossings and other in-stream structures to provide for passage of flow and sediment, withstand expected flood flows, and to allow free movement of resident aquatic life. 4. Maintain long-term ground cover, soil structure, water budgets, and flow patterns of wetlands to sustain their ecological functions. 5. Limit roads and other disturbed sites to the minimum feasible number, width, and total length. 6. Construct roads and other disturbed sites to minimize sediment discharge into streams, lakes, & wetlands. 7. Stabilize and maintain roads and other disturbed sites during and after construction to control erosion. 8. Reclaim roads, landings and other disturbed sites when use ends, as needed, to prevent resource damage. 9. Manage land treatments to limit the sum of severely burned soil and detrimentally compacted, eroded, and displaced soil to no more than 15% of any activity area. <p>The following design criteria to protect watershed resources (BMPs) are based on, and structured according to the Region 2 Watershed Conservation Practices Handbook. They address conditions or circumstances that have occurred on recent GMUG NF timber sales. Additional BMPs in the R2 Handbook or National Handbook may apply within future treatment areas as determined during project-specific assessments. The various measures may be achieved through avoidance, on-the-ground marking, appropriate contract provisions, identification on the sale area map, or during sale administration.</p> <p>Project-specific soils, hydrologic, and watershed condition assessments will be performed prior to any on-site work. Project-specific design features will be selected based on project tasks and the results of project-specific assessments.</p> <p>Literature Cited USDA Forest Service. 2006. Watershed conservation practices handbook. Forest Service Handbook R-2 FSH 2509.25, 58 pp. Denver, CO: USDA Forest Service, Rocky Mountain Region. Amendment No. 2509.25-2006-1, approved April 20, 2006. USDA Forest Service. 2012. National best management practices for water quality management on National Forest System Lands, Volume 1. National core BMP technical guide. Publication FS-990a, 177 pp. Washington, DC: USDA Forest Service. http://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf.</p>	
<p>WQSP-1</p> <p>A. Maintain the organic ground cover of each activity area so that pedestals, rills, and surface runoff from the activity area are not increased. The amount of organic ground cover needed will vary by different ecological types and should be commensurate with the potential of the site.</p> <p>B. Restore the organic ground cover of degraded activity areas within the next plan period, using certified local native plants as practicable; avoid persistent or invasive exotic plants.</p> <p><i>Additional project-specific design features may be added as determined during analysis by the resource specialist.</i></p>	<p>USDA Forest Service 2006</p>

WQSP-2A	A. The minimum horizontal width of the Water Influence Zone for various water related features is as follows:	USDA Forest Service 2006, Management Prescription 09A in 1991 Forest Plan, and <i>project specific design</i>												
	<table><tr><th>Feature</th><th>Outside Edge of WIZ</th></tr><tr><td>Perennial Stream</td><td>100 ft from Stream Bank</td></tr><tr><td>Intermittent Stream</td><td>50 ft from Stream Bank</td></tr><tr><td>Wetlands ≥ ¼ acre</td><td>100 ft from Edge of Wetland</td></tr><tr><td>Springs/Seeps/Wetlands < ¼ acre</td><td>50 ft from the source or edge of associated wetland, whichever is greater</td></tr><tr><td>Ditch</td><td>Edge of Right of Way</td></tr></table>		Feature	Outside Edge of WIZ	Perennial Stream	100 ft from Stream Bank	Intermittent Stream	50 ft from Stream Bank	Wetlands ≥ ¼ acre	100 ft from Edge of Wetland	Springs/Seeps/Wetlands < ¼ acre	50 ft from the source or edge of associated wetland, whichever is greater	Ditch	Edge of Right of Way
	Feature		Outside Edge of WIZ											
	Perennial Stream		100 ft from Stream Bank											
	Intermittent Stream		50 ft from Stream Bank											
	Wetlands ≥ ¼ acre		100 ft from Edge of Wetland											
	Springs/Seeps/Wetlands < ¼ acre		50 ft from the source or edge of associated wetland, whichever is greater											
Ditch	Edge of Right of Way													
B. Keep heavy equipment out of streams, swales, and lakes, except to cross at designated points, build crossings, or do restoration work, or if protected by at least 1 foot of packed snow or 6 inches of frozen soil. Keep heavy equipment out of streams during fish spawning, incubation, and emergence periods.														
C. Ensure at least one-end log suspension in the WIZ. Fell trees in a way that protects vegetation in the WIZ from damage. Keep log landings and skid trails out of the WIZ, including swales.														
D. Locate new concentrated-use sites outside the WIZ if practicable and outside riparian areas and wetlands. Armor or reclaim existing sites in the WIZ to prevent detrimental soil and bank erosion.														
E. Do not excavate earth material from, or store excavated earth material in, any stream, swale, lake, wetland, or WIZ.														
F. Maintain at least 80 percent of potential ground cover within the WIZ <i>Additional project-specific design features are listed below and more may be added as determined during analysis by the resource specialist.</i>														
WQSP-3A	A. Install stream crossings to meet Corps of Engineers and State permits, pass normal flows, and be armored to withstand design flows.	USDA Forest Service 2006												
	B. Size culverts and bridges to pass debris. Engineers work with hydrologists and aquatic biologists on site design. C. Install stream crossings to sustain bankfull dimensions of width, depth, and slope and keep streambeds and banks resilient. Favor bridges, bottomless arches or buried pipe-arches for those streams with identifiable flood plains and elevated road prisms, instead of pipe culverts. Favor armored fords for those streams where vehicle traffic is either seasonal or temporary, or the ford design maintains the channel pattern, profile and dimension. <i>Additional project-specific design features are listed below and more may be added as determined during analysis by the resource specialist.</i>													
WQSP-3B	Where access across the WIZ must be provided by temporary roads, they will be completely decommissioned by obliteration after harvest is complete. Obliteration at crossings will include the removal of culverts & fill material, the re-contouring of stream banks to the original landform shape, and seeding & mulching of the disturbed surfaces. The remaining prism within the WIZ shall be de-compacted, seeded, and mulched.	Management Prescription 09A, 1991 Forest Plan, and <i>project specific design</i>												
WQSP-4	A. Keep ground vehicles out of wetlands. Do not disrupt water supply or drainage patterns into wetlands. B. Keep roads and trails out of wetlands. Avoid actions that may dewater or reduce water budgets in wetlands. C. Avoid any loss of rare wetlands such as fens and springs. D. Do not build firelines in or around wetlands unless needed to protect life, property, or wetlands. Use hand lines with minimum feasible soil disturbance. Use wetland features as firelines if practicable. <i>Additional project-specific design features are listed below and more may be added as determined during analysis by the resource specialist.</i>	USDA Forest Service 2006, Executive Order 11990, and <i>project specific design</i>												

WQSP-5	<p>A. Avoid soil-disturbing actions during periods of heavy rain or wet soils. Apply travel restrictions to protect soil and water.</p> <p>B. Install cross drains to disperse runoff into filter strips and minimize connected disturbed areas. Make cuts, fills, and road surfaces strongly resistant to erosion between each stream crossing and at least the nearest cross drain. Revegetate using certified local native plants as practicable; avoid persistent or invasive exotic plants.</p> <p>C. Use existing roads unless other options will produce less long-term sediment. Reconstruct for long-term soil and drainage stability.</p> <p>D. Avoid ground skidding on sustained slopes steeper than 40% and on moderate to severely burned sustained slopes greater than 30%. Conduct logging to disperse runoff as practicable.</p> <p>E. Locate and construct log landings in such a way to minimize the amount of excavation needed and to reduce the potential for soil erosion. Design landings to have proper drainage. After use, treat landings to disperse runoff and prevent surface erosion and encourage revegetation.</p> <p><i>Additional project-specific design features may be added as determined during analysis by the resource specialist.</i></p>	USDA Forest Service 2006 and <i>project specific design</i>
WQSP-6	<p>A. Design all roads, trails, and other soil disturbances to the minimum standard for their use and to "roll" with the terrain as feasible.</p> <p>B. Use filter strips, and sediment traps if needed, to keep all sand-sized sediment on the land and disconnect disturbed soil from streams, lakes, and wetlands. Disperse runoff into filter strips.</p> <p><i>Additional project-specific design features may be added as determined during analysis by the resource specialist.</i></p>	USDA Forest Service 2006 and <i>project specific design</i>
WQSP-7A	<p>A. Do not encroach fills or introduce soil into streams, swales, lakes, or wetlands.</p> <p>B. Space cross drains according to road grade and soil type as indicated below: (ex. 01). Do not divert water from one stream to another.</p> <p>C. Empty cross drains onto stable slopes that disperse runoff into filter strips. On soils that may gully, armor outlets to disperse runoff. Tighten cross-drain spacing so gullies are not created.</p> <p>D. Where berms must be used, construct and maintain them to protect the road surface, drainage features, and slope integrity while also providing user safety.</p> <p><i>Additional project-specific design features are listed below and more may be added as determined during analysis by the resource specialist.</i></p>	USDA Forest Service 2006 and <i>project specific design</i>

WQSP-7B	A. Skid trail locations will be agreed to by the Forest Service in advance of construction; spacing will be approximately 100 feet apart, allowing for topographic variation and skid trail convergence. Space water bars as appropriate on skid trails according to slope and soil type as indicated below:	USDA Forest Service 2006, ASTM D-2487, and <i>project specific design</i>																																								
	<table><tr><th colspan="5">Unified Soil Classification - ASTM D 2487¹</th></tr><tr><th>Slope (%)</th><th>ML, SM <u>Extremely Erodible</u> Silts &sands with little or no binder (i.e. decomposed granite)</th><th>MH, SC, CL <u>Highly Erodible</u> Silts & sands with moderate binder</th><th>SW, SP, GM, GC <u>Moderately Erodible</u> Gravels + fines & sands with little or no fines</th><th>GW, GP <u>Slightly Erodible</u> Gravels with little or no fines</th></tr><tr><td>1-3</td><td>200</td><td>300</td><td>400</td><td>500</td></tr><tr><td>4-6</td><td>125</td><td>200</td><td>300</td><td>400</td></tr><tr><td>7-9</td><td>100</td><td>150</td><td>200</td><td>250</td></tr><tr><td>10-12</td><td>70</td><td>100</td><td>150</td><td>200</td></tr><tr><td>13-25</td><td>50</td><td>50</td><td>75</td><td>100</td></tr><tr><td>25+</td><td>30-50</td><td>30-50</td><td>60-75</td><td>80-100</td></tr></table>		Unified Soil Classification - ASTM D 2487 ¹					Slope (%)	ML, SM <u>Extremely Erodible</u> Silts &sands with little or no binder (i.e. decomposed granite)	MH, SC, CL <u>Highly Erodible</u> Silts & sands with moderate binder	SW, SP, GM, GC <u>Moderately Erodible</u> Gravels + fines & sands with little or no fines	GW, GP <u>Slightly Erodible</u> Gravels with little or no fines	1-3	200	300	400	500	4-6	125	200	300	400	7-9	100	150	200	250	10-12	70	100	150	200	13-25	50	50	75	100	25+	30-50	30-50	60-75	80-100
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¹ American Society for Testing Materials, standard classification of soil for engineering purposes.																																										
B. Space cross drains and rolling dips as appropriate on temporary roads according to road grade and soil type as described in FSH 2509.25 table 13.3 – Exhibit 01, Maximum Cross-Drain Spacing in Feet Based on Soil Types.																																										
WQSP-8A	<p>A. Site-prepare, drain, decompact, revegetate, and close temporary and intermittent use roads and other disturbed sites within one year after use ends. Provide stable drainage that disperses runoff into filter strips and maintains stable fills. Do this work concurrently. Stockpile topsoil where practicable to be used in site restoration. Use certified local native plants as practicable; avoid persistent or invasive exotic plants.</p> <p>B. Remove all temporary stream crossings (including all fill material in the active channel), restore the channel geometry, and revegetate the channel banks using certified local native plants as practicable; avoid persistent or invasive exotic plants.</p> <p>C. Restore cuts and fills to the original slope contours where practicable and as opportunities arise to re-establish subsurface pathways. Use certified local native plants as practicable; avoid persistent or invasive exotic plants. Obtain stormwater (402) discharge permits as required.</p> <p><i>Additional project-specific design features may be added as determined during analysis by the resource specialist.</i></p>	USDA Forest Service 2006 and <i>project specific design</i>																																								

WQSP-8B	<p>In decommissioning roads,</p> <p>A. Implement suitable measures to close and physically block the road entrance so that unauthorized motorized vehicles cannot access the road.</p> <p>B. Remove the road from the Motor Vehicle Use Map (MVUM) to include the change in the annual forestwide order associated with the MVUM.</p> <p>C. Establish effective ground cover on disturbed sites to avoid or minimize accelerated erosion and soil loss.</p> <p>D. Evaluate risks to soil, water quality, and riparian resources and use the most practicable, costeffective treatments to achieve long-term desired conditions and water quality management goals and objectives.</p> <p>E. Use applicable practices of BMP Fac-2 (Facility Construction and Stormwater Control) for stormwater management and erosion control when obliterating system roads.</p> <p>F. Implement suitable measures to re-establish stable slope contours and surface and subsurface hydrologic pathways where necessary to the extent practicable to avoid or minimize adverse effects to soil, water quality, and riparian resources.</p> <p>G. Remove drainage structures.</p> <p>H. Recontour and stabilize cut slopes and fill material.</p> <p>I. Reshape the channel and streambanks at crossing sites to pass expected flows without scouring or ponding, minimize potential for undercutting or slumping of streambanks, and maintain continuation of channel dimensions and longitudinal profile through the crossing site.</p> <p>J. Restore or replace streambed materials to a particle size distribution suitable for the site.</p> <p>K. Restore floodplain function.</p> <p>L. Implement suitable measures to promote infiltration of runoff and intercepted flow and desired vegetation growth on the road prism and other compacted areas.</p> <p>M. Use suitable measures in compliance with local direction to prevent and control invasive species.</p> <p>Design features described in Part 3, National Core BMPs, of the National Best Management Practices for Water Quality Management on National Forest System Lands shall be used as needed. <i>Additional project-specific design features may be added as determined during analysis by the resource specialist.</i></p>	USDA Forest Service 2012
WQSP-9A	<p>A. Restrict roads, landings, skid trails, concentrated-use sites, and similar soil disturbances to designated sites.</p> <p>B. Operate heavy equipment for land treatments only when soil moisture is below the plastic limit, or protected by at least 1 foot of packed snow or 6 inches of frozen soil.</p> <p>C. Conduct prescribed fires to minimize the residence time on the soil while meeting the burn objectives. This is usually done when the soil and duff are moist.</p> <p><i>Additional project-specific design features are described below and more may be added as determined during analysis by the resource specialist.</i></p>	USDA Forest Service 2006, FSH 2509.18, Soil Management Handbook, 1992, and <i>project specific design</i>
WQSP-9B	Fire lines and fuel breaks should utilize existing roads, skid trails, natural features, and use of wet lines as much as possible to minimize impacts caused by new line construction.	<i>Project specific design</i>
WQSP-9C	The total length and width of constructed lines should be minimized. Blading to expose bare mineral soil displaces the nutrient and organic matter enriched surface horizon and increases the risk of erosion and spread of noxious weeds.	<i>Project specific design</i>
WQSP-9D	Avoid dozer line construction on slopes greater than 30%.	<i>Project specific design</i>
WQSP-9E	After use, pull soil and litter back into the fire line, seed, and top scatter slash if available. Where fire lines create cut slopes re-contour by pulling side cast or fill material back, seed, and top scatter slash if available immediately after use.	<i>Project specific design</i>
WQSP-9F	Avoid direct ignition of concentrated areas of dry masticated materials greater than 2" in depth. Prescribed fire may be allowed to burn into these areas.	<i>Project specific design</i>

Wildlife, Fish and Rare Plants Objectives: <ol style="list-style-type: none"> 1. Design projects to meet applicable objectives and standards with the Southern Rockies Lynx Amendment (SRLA). Consider guidelines outlined in the SRLA in project planning. When guidelines cannot be met, provide rationale to Fish and Wildlife Service (FWS) in year-end reporting. 2. Design projects to meet applicable Forest Plan standards and guidelines related to wildlife. 3. Complete annual reporting to FWS as required by the SRLA. 		
WFRP-1	All applicable management Objectives, Standards and Guidelines contained in the Southern Rockies Lynx Amendment will be applied during project planning, analysis and implementation.	Southern Rockies Lynx Amendment
WFRP-2	At a minimum, in spruce-fir forest types maintain 90 to 225 snags per 100 acres, 10 inches in diameter at breast height (dbh) or greater (where biologically feasible). In aspen forest types, maintain 120 – 180 snags per 100 acres, 8 inches dbh or greater (where biologically feasible). Snags would be maintained away from structures, roads and trails so that they do not create safety hazards to the public. Trees to retain include large live trees with broken or dead tops (snag replacement trees), and other trees showing wildlife signs (dens, nests, cavities, squirrel middens, woodpecker activity) within and adjacent to harvest units to provide for perching, foraging, roosting, and nesting sites for wildlife. To compensate for the lack of snags along road corridors due to removal for OSHA safety needs, leave a greater density of wildlife trees in areas away from roads and landings. Snags within 500 feet of water (creeks, ponds, wet meadows, seeps, and springs), meadows/parks/forest openings, and ridge tops are particularly valuable to wildlife. Where possible, groups of snags in close proximity to each other or associated with green trees will be retained. Retention of snag groups will reduce wind-throw. Where possible, utilize natural sinuosity or drainages for linking groups. Leave snags with a variety of heights, shapes, and decay condition. Generally, taller and larger diameter snags provide better habitat for more species. Leave snags of all species type. Protect standing wildlife trees from damage during site preparation and post-sale activities.	GMUG Forest Plan Standards and Guidelines
WFRP-3	Maintain 10-20 tons per acre of coarse woody debris within harvest units to maintain soil moisture at ground level for mosses, fungi, and lichens and to encourage faster re-colonization of harvest units by small mammals and other prey species. Retain some small slash piles to provide habitat for small mammals. Where possible in regeneration units, create piles of logs, stumps, or other woody debris to minimize the effects of larger openings and to provide connectivity to adjacent stands for lynx, marten, and other species that may generally avoid open areas and utilize concentrations of down wood for foraging or denning.	GMUG Forest Plan Standards and Guidelines
WFRP-4	Maintain large diameter downed logs in various stages of decomposition within harvest units (50 linear feet/acre of 10 inches diameter or larger at the large end of lodgepole pine and aspen logs and/or 12 inches diameter or larger for Engelmann spruce, subalpine fir and Douglas fir logs).	
WFRP-5	Maintain screening cover consisting of live trees, snags, and coarse woody debris (including jackstraw piles) for lynx and other wildlife on strategically located portions, of the landscape (where feasible) between cutting units, roads, and meadows. This screening cover should be comprised of tree retention strips a minimum of 200 feet wide unless topographic breaks occur between cutting units, roads or meadow openings. This will be especially important within the lynx linkage zones.	Project specific design to support consistency with the SRLA
WFRP-6	Northern goshawk - No activities will be allowed within ½ mile of active nests from March 1 to August 31 or until fledging has occurred. The timing restriction buffer could be reduced to ¼ mile if topographic features and/or adequate screening cover are present that would protect the nest site from disturbance. No harvest activities will be allowed within a 30-acre buffer of nest sites. Outside of a 30-acre area around goshawk nest sites, timing restrictions are not needed for project layout, marking, and any other activities that are non-disturbing (i.e., activities not involving the use of heavy equipment or chainsaws). Timing restrictions will only apply to active nests, as confirmed by the USFS wildlife biologist.	Colorado Parks and Wildlife Raptor Buffer and Timing Restriction Recommendations; GMUG Forest Plan Standards and Guidelines

WFRP-7	On-going surveys for raptors would be conducted to determine locations of individuals or populations of these species and allow for the implementation of protection measures as appropriate.	Project specific design; Migratory Bird Treaty Act
WFRP-8	Retain all live trees in salvage units, except for trees that need to be removed for operational/safety or silvicultural purposes. Operational/safety or silvicultural purposes include the need to remove live trees if necessary to access dead trees for salvage or to address safety concerns.	Project Specific Design
WFRP-9	Skid trails and landings will be located to minimize impacts to advanced regeneration. Both landings and skid trails will be designated as part of sale design. Skid trails will be placed at least 100 feet apart, except where they need to tie in together at landings.	Project Specific Design
WFRP-10	Areas supporting live advanced regeneration will be avoided during unit layout. Focus should be placed on areas with >35% Dense Horizontal Cover in blocks greater than 0.3 acres.	SRLA
WFRP-11	Landings, temporary roads and main skid trails will be evaluated after the completion of operations to determine if detrimental soil compaction has occurred. Based on review by a specialist, when detrimental compaction is found, subsoil ripping will be applied to reduce soil impacts. This would provide for a more suitable seedbed for future regeneration, thus preventing permanent impacts of skid trails that when left in a compacted state, often do not regenerate as well as adjacent un-compacted areas.	Project Specific Design
WFRP - 12	Surveys for threatened, endangered, and sensitive (TES) species have already occurred in the project area. However, since it will take several years to fully implement timber sale projects, some level of TES re-survey will occur on an annual basis. If TES species are confirmed present the appropriate standards for the Forest Plan and Gunnison Field Office RMP will be applied (timing restrictions, distance from nest sites, etc.).	Project Specific Design
WFRP-13	Winter logging is encouraged to limit direct disturbance to the fewest number of wildlife species as possible. When possible, avoid treatment activities in areas where big game (elk, pronghorn and moose) are known to occur. When big-game winter range is bisected by proposed haul routes and there are concentrations of animals along these routes minimize stress to wintering animals to the extent practicable by: A. Re-routing along another acceptable route. B. Restrict haul times between 9 am and 4 pm. The district biologist will coordinate with Colorado Parks and Wildlife to assess big game use and identify areas where animals concentrate during winter, and assess if there is a need to implement conservation measures. This would be a coordinated effort with the GMUG, Colorado Parks and Wildlife, and the timber purchaser.	GMUG Forest Plan General Direction 04, 05c. and 05f. (page III-76 – II-77)
WFRP-14	Gunnison sage-grouse – Portions of haul routes may occur in occupied habitat in few areas. Where use of haul routes have the potential to impact Gunnison sage-grouse as determined by the effects analysis, timing restrictions should be applied that prohibit the use of haul routes that occur within 0.6 mi of active leks (breeding sites) from March 15 – May 15.	
WFRP-15	To maintain lynx habitat connectivity, retain blocks of taller or denser vegetation within treatment areas. This pertains to treatments along roads and in areas where large scale salvage activities would occur. Tree retention blocks will cross the width of a large salvage area, but may include natural gaps in vegetation within the blocks. Since the proposed action includes maintaining high quality habitat (>35% DHC) in areas 0.3 acres or larger, these areas could be used as building blocks to maintain connectivity in areas where extensive salvage is proposed. Early-successional tree species will be retained along with shrubs and other vegetation. The blocks would typically be about 50 to 100 meters in length, and as wide as large salvage areas (depending on site conditions [e.g., availability of contiguous effective habitat on both sides of the salvage area, availability of natural connections in the area, fire risk of the fuels condition of the vegetation block, and present condition of the lynx habitat]). The retention blocks would include early-successional stages, or stand initiation that develops after the insect outbreak (such as reinitiation of lodgepole pine, Engelmann spruce and subalpine fir).	Project specific design; developed in coordination with U.S. Fish and Wildlife Service. Intended to support consistency with SRLA direction for lynx habitat connectivity. Canada Lynx Conservation Assessment and Strategy, August 2013

Monitoring Objectives: Xxx		
MNTG-1	<p>The SBEAD Response Project is an adaptive management project. As such, monitoring plays an important role in providing feedback on which design features were implemented, which were effective, and whether adaptations are needed to treatment design to make them more effective.</p> <p>Monitoring SBEAD Response Project activities would consist of two types of monitoring:</p> <ol style="list-style-type: none"> 1. Implementation monitoring would measure whether applicable design criteria, BMPs and Forest Plan standard and guidelines are correctly implemented. This allows managers to adjust management if certain items are being missed during the implementation process. 2. Effectiveness monitoring measures whether the treatments implemented with the design criteria, BMPs and Forest Plan standard and guidelines are achieving the desired outcomes. Effectiveness monitoring would measure how implemented treatments are effective at protecting resources as well as reducing risk. If monitoring finds resource protection Objectives are not being achieved, then: <ol style="list-style-type: none"> A. Reduce or modify vegetation treatment operations and/or B. Increase resource protection measure C. Increase monitoring to determine the source of impact and apply appropriate mitigation <p>One individual project will be selected from various types of treatments each year for monitoring and evaluation by an IDT. Monitoring would occur through pre-field review and field visits. The pre-field review would include reviewing implementation notes and applicable standards, guidelines, design criteria and BMPs. Field visits would be accomplished in an interdisciplinary fashion to facilitate cross-sharing of effectiveness and identification of needed changes to project activities. The monitoring information collected would be evaluated and documented along with any recommended changes in an annual report. The annual report would be completed and provided to the Forest Supervisor within two months of the end of the fiscal year (January 31 of each year).</p>	GMUG LRMP

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